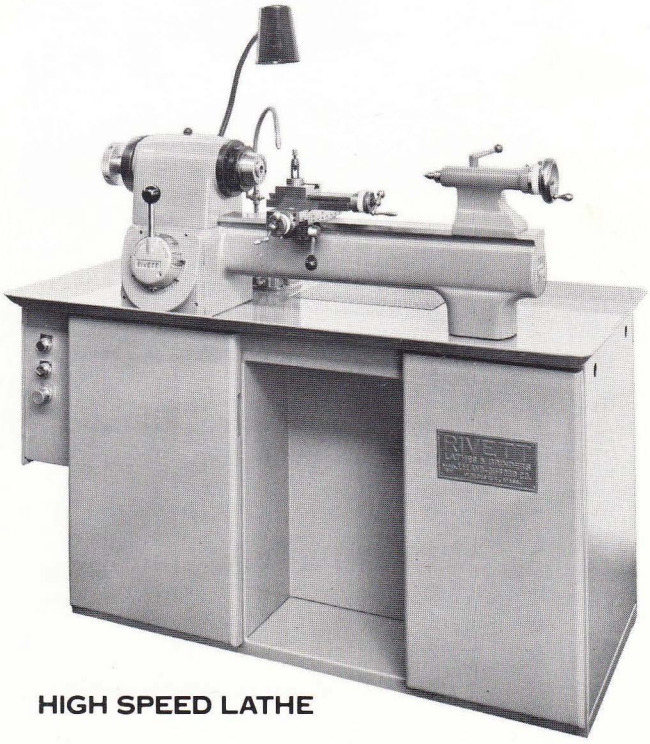
BULLETIN No. 60S-1

# RIVETT

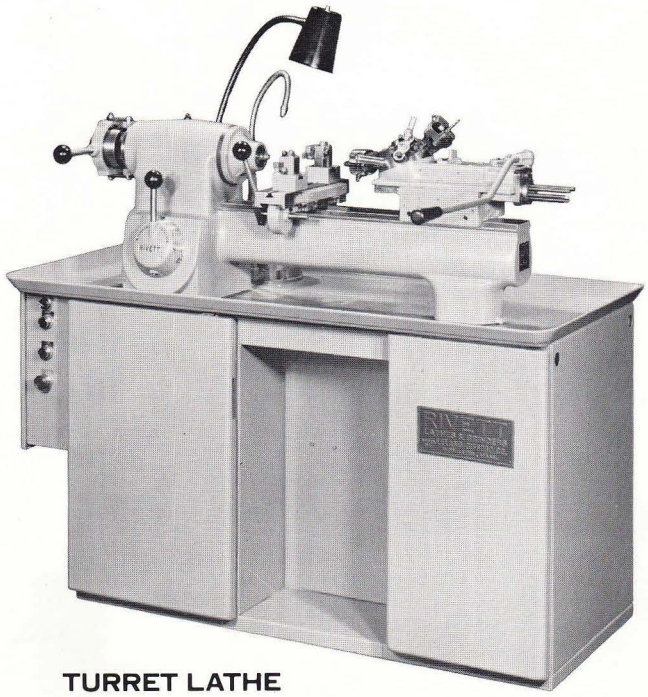
# 60

# SIXTY SERIES PRECISION LATHES

Featuring
"ONE MOTION"
Speed Control



HIGH SPEED LATHE



TURRET LATHE

RIVETT LATHES & GRINDERS

Manufactured by
**LELAND-GIFFORD CO.**
1001 Southbridge St., Worcester, Mass. 01601
Phone: 617-752-5635

# SMALL PARTS CAN MEAN BIG PROFITS

*. . . when Machined on a RIVETT*

Sixty Series High Speed and Turret Lathes represent the last word in precision machining . . . the result of over 80 years in the design and production of fine machine tools. The Rivett/Leland-Gifford Co. offers double heritage of accuracy, performance and life—products of two long histories of design refinement, engineering innovation, craftsmanship, and metalworking know-how.

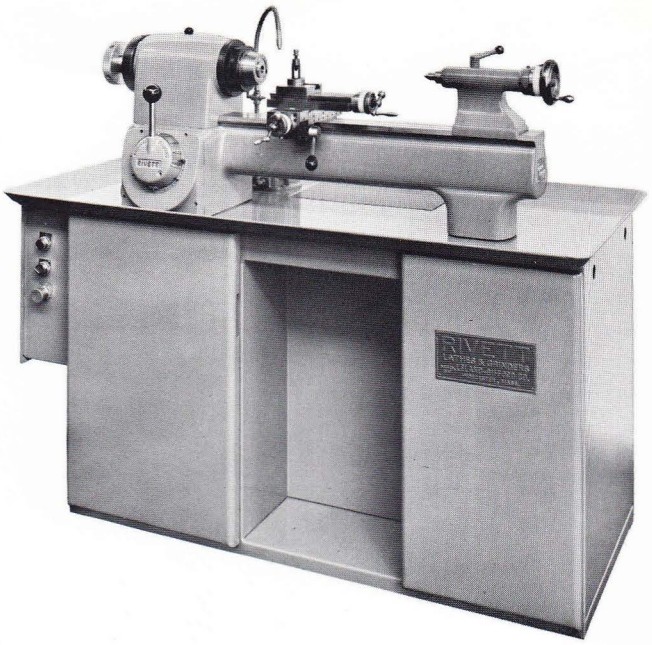
Built with Precision . . . for Precision

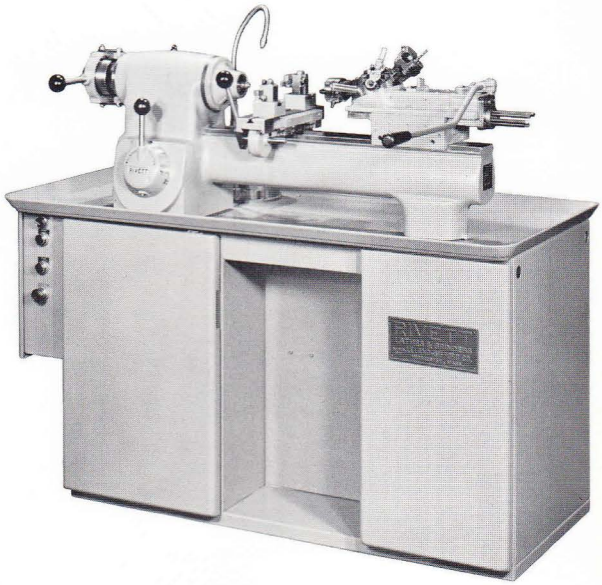
Rivett lathes run smoothly, quietly, without damaging vibration or machine-induced tool chatter, under the most adverse conditions. Dynamically-balanced spindle, hardened and ground precision ways, close fits, rigid shock-absorbing bed and base, vibration isolaters . . . all contribute to the remarkable accuracy and repeatability of these machines.

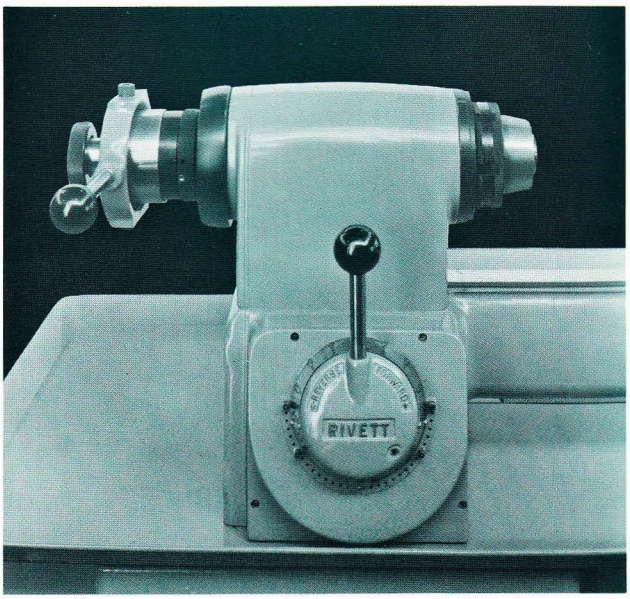
Maximum versatility is designed into these lathes. Each offers a wide range of instantly available speeds, a selection of speed ranges; quickly positioned tool compound, cross slide, turret and tailstock; and many other provisions for fast setup. Short, medium, long runs —brass, aluminum, steel, plastics . . . are all handled efficiently. And the mix has no effect on machine's productivity.

Maximum attention has been given to operator convenience—such as simplified controls, easy to reach, easy to use, conducive to establishing operator rhythm. Less lost motion, less operator fatigue mean shorter cycles, higher production.

Rivett lathes have been engineered for maximum maintainability. Components feature amazingly long wear life. In cases where wear may eventually occur, self-compensating devices or easily adjusted clearances are provided. All critical working mechanisms are protected from ingress of dirt and coolant. Lubrication needs are held to a minimum; all bearings are sealed and lubricated for life.







## SIXTY SERIES PRECISION HIGH SPEED LATHE

A production tool of high speed, accuracy and durability. Ideal for machining shafts, spindles and other work held between centers, or chucked and collet held workpieces where most operations are on O.D. Its design offers advantages not derived from any similar type lathe—sensitive precision, simplified controls, easy set-up, variable high speeds, combined with extra-rugged construction and extra capacity.

9¼" Swing—18" Between Centers—1⅛" Collet Capacity

## SIXTY SERIES PRECISION TURRET LATHE

Designed specifically for second operations and the initial machining of small accurate parts in the electronic, instrument, optical, photographic, missile and similar industries. Built into this production gem is all the inherent accuracy of a fine precision lathe, plus numerous features that will improve manufacturing operations in any production shop. Its design assures faster, steadier output; maintenance of close tolerances through entire run; capability of handling broader range of jobs; and greater operator convenience and speed.

9¼" Swing—16"Collet to Turret Face—
1⅛" Collet Capacity

*A Rivett First . . .*

## ONE MOTION SPEED CONTROL

*Reduced Spindle Control Time Increases Productive Time*

Spindle drive features selection of speeds with "One Motion Control" that reduces operator time and effort to a minimum. Single lever starts lathe spindle and selects any available speed within range used. Same lever will change speed during operation, or instantly stop or reverse spindle by dynamic braking.

Optional feature provides fingertip control on same lever to open and close air-operated collet or step chuck, offering even greater savings in time and operator convenience.

Stops may be set for repeating selected speeds on repetitive work, and detent stops may be used to alert operator when desired speeds are attained. There is no waiting during speed selection or speed change. There is greater ease of operation, less handling time, and an opportunity for greatly increased production.

Instantly reversing spindle is particularly valuable for quickly retracting taps and dies, thus shortening the cycle.

# GREATER PRODUCTIVITY

*assured by these RIVETT Firsts!*

1. One Motion Control—Single lever selection of any speed within range, control of instant braking and motor reversal, and—if needed—fingertip control of collet closing and release

2. Super-Precision Spindle—Vee-belt driven, for machining to close tolerances and fine finishes

3. Unique Bedway Form—For positive alignment of tailstock or turret and cross slide with spindle

4. Double Three-Point Mounting—Of lathe bed and headstock for freedom from distortion

5. Compound Rest with Hardened and Ground Steel Slides—Assures precision accuracy, rigidity and greater wear life plus freedom of motion

6. Automatic Indexing Turret—For shorter cycle time, increased production

7. Double Tool Cross Slide with Hardened and Ground Steel Slides and Centering Detent—For added productivity of turret lathe

8. Wear Compensating Nuts On Feed Screw —increases operating life

9. Lubrication System — Completely lubricates working mechanisms for smooth trouble-free operation

# RIVETT "FIRSTS"

## Assure Greater Precision Work and Higher Speed On a Greater Variety of Jobs

*A Rivett First . . .*

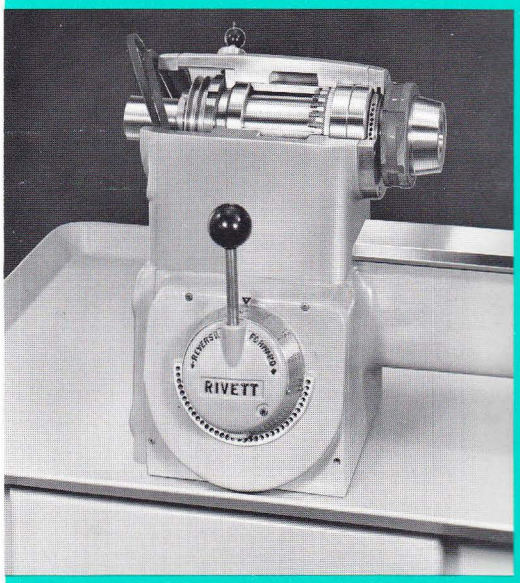
### SPINDLE WITH TRUE ROUNDNESS AND RIGIDITY

*Built with Precision . . . for Precision Machining*

Large diameter super-precision ball bearings fitted to inline ground mountings ensure near perfect roundness. Spindle runout is held within .000050" TIR with no camming action.

Constant bearing preload, unchanged by speed or heat, holds spindle rigid against both side and end pressures of cutting tool. Spindle is supported by double radial thrust bearings at nose and single axial bearing at outboard end. Unusually heavy wall and wide bearing spacing contribute to spindle's rigidity.

Permanently lubricated bearing and endless vee belts, easily replaced without disassembling spindle, reduce cost of maintenance. Spindle and spindle assembly are dynamically balanced for maximum freedom from vibration. Spindle should require no servicing throughout life of lathe.




### ADJUSTABLE-SPEED DRIVE SYSTEMS

*Meets all Requirements*

Standard drive system is DC system with variable speed control using solid state rectifier and DC drive motor. A rotary controller provides 16 evenly spaced steps of motor speed adjustment in either direction. These steps are indicated on the "One Motion Control" dial, with full dynamic braking at zero.

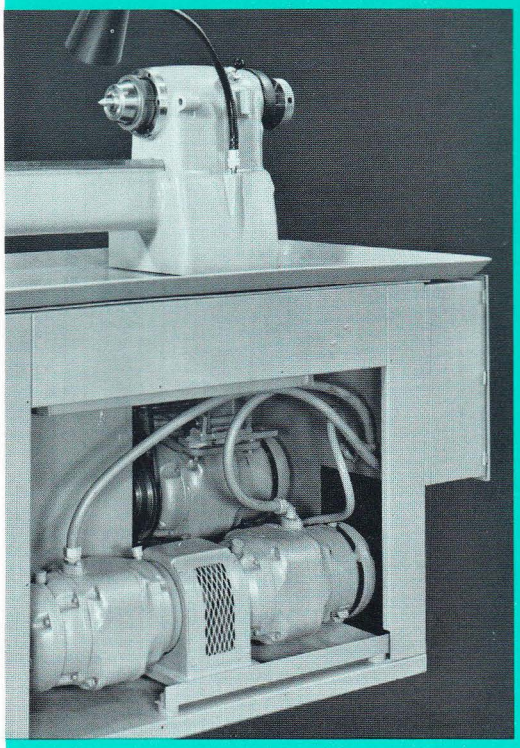
System is inherently simple and easily understood by any electrical maintenance man. It is practically foolproof and has no automatic relays or delicate electronic parts to adjust or maintain. Rotating units are of NEMA enclosed ball-bearing, fan-cooled type designed for long continuous trouble-free service.

Multi-step sheaves on drive motor provide four different speed ranges with corresponding torques: 0-4800 rpm, 0-3200 rpm, 0-1600 rpm, and 0-800 rpm. Change of speed range is made manually; belt tension is self-adjusting.

A two-step sheave on jackshaft provides for still more torque on large, heavy work.

Special headstock drive sheaves are available to provide maximum spindle speed of 8000 rpm, needed for machining small parts of hardness to Rockwell C 60 with ceramic tools.

An AC fixed-speed drive system is available for installations where quick variation of speeds is not required. Using two-speed reversible motor and multi-step sheaves this system provides 20 spindle speeds forward and reverse from 150 to 4200 rpm. Brake, interconnected with control lever, is automatically released when drive is started. It can also be released for manual rotation of spindle drive setup.



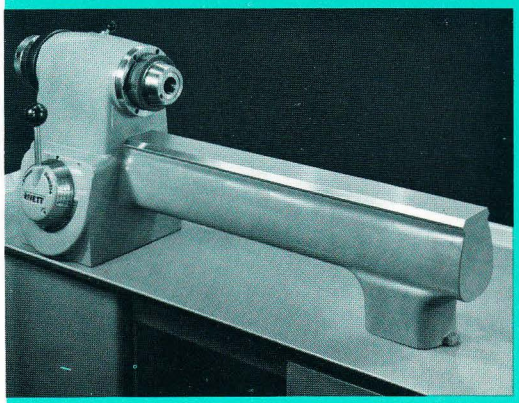
*A Rivett First . . .*

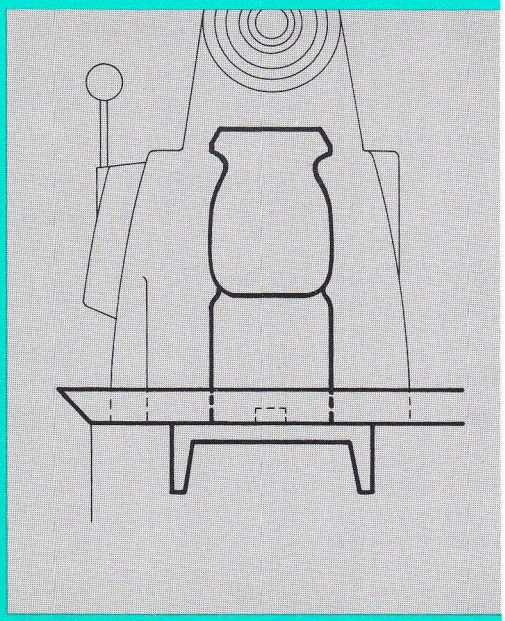
### UNIQUE BED FORM

*Maximum Bearing Surface Means Longer Way Life*

Cast one piece bed is designed with integral ways and internal bracing for high torsional resistance as well as high bending strength. This bed permanently maintains straightness, flatness and parallelism of full-hardened and precision-ground bedways.

Double bevels straddle wide top bearing surface and positively center cross slide and tailstock or turret in alignment with headstock bore. Lower pair of return bevels are used in clamping positionable units to top bearing surface, protecting aligning bevels against torsional and vertical forces during machining. Large top bearing area distributes load, prevents rocking action due to tool pressures, and eliminates high unit pressures conducive to localized wear.





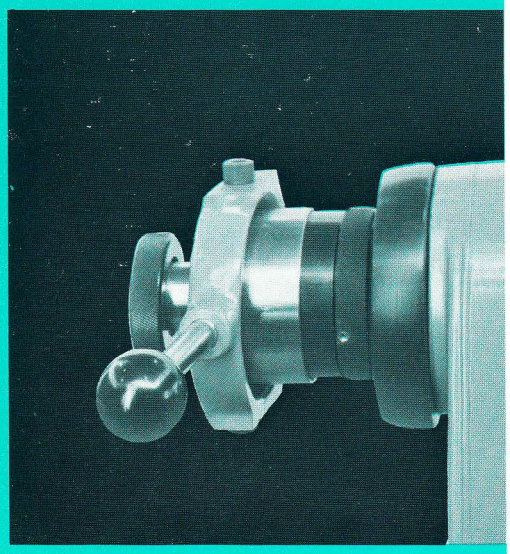
*A Rivett First . . .*

## DISTORTION-FREE MOUNTING

*One Piece Lathe Bed Isolated from Vibration, Shock*

Uneven or non-rigid floor cannot distort lathe. Bed has three-point mounting on strong, rigid steel channel which is isolated by resilient mounting from any distortion or movement of cabinet. Torque arm attached to channel is also cushioned from metal-to-metal contact with spindle.

This mounting feature, isolation of spindle from motor by belt drive, and resilient mounting of electrical rotating members prevents transmission of vibrations. No transient vibrations from neighboring machines, or impact forces from irregular floor loading, are transmitted to primary lathe. Nor are any vibrations originating within lathe transmitted to cabinet; thus lathe is a quiet, smooth operating machine.

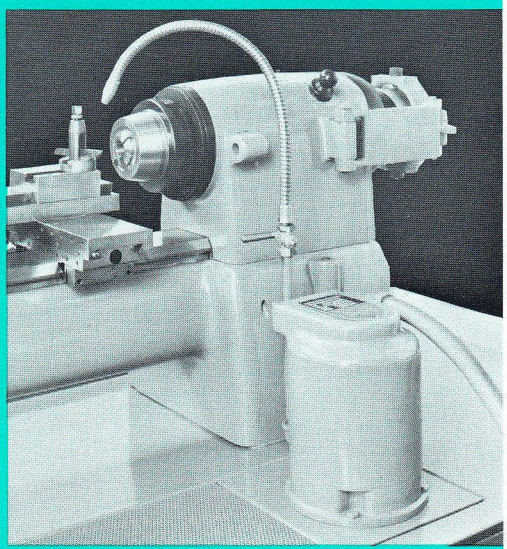


## LEVER OR AIR COLLET CLOSER

*Speeds Loading, Unloading of Work*

Lever-type collet closer permits rapid chucking of repetitive parts. Desired gripping force of collet or step chuck is quickly and easily adjusted by hand without tools. Easily reached handle minimizes operator effort.

For even faster and easier chucking, air operation of lever collet closer is available. Pushbutton on knob of spindle-speed control lever opens and closes collet or step chuck. This fingertip control feature further reduces operator effort to "One Motion Control". Should air supply fail, closed collet or chuck will remain closed. Operator can change to manual operation when desired.

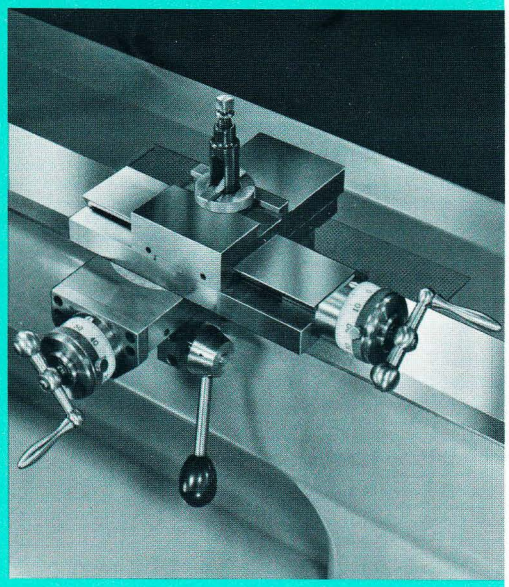


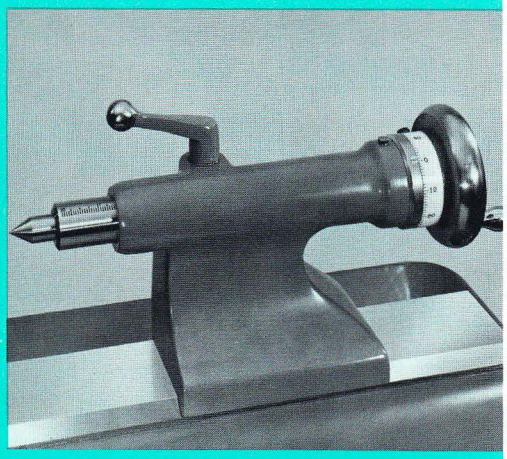
## COOLANT PUMP

A direct motor driven coolant pump can be furnished when required. It mounts directly in coolant tank built into self-draining tray behind lathe bed. Tank cover acts as strainer to separate chips. Pump and motor are easily removed for cleaning. Front and rear splash guards are also available.

*ADDED FEATURES OF*

# SIXTY SERIES PRECISION HIGH SPEED LATHE





*A Rivett First . . .*

## COMPOUND REST WITH HARDENED STEEL SLIDES

*Built for Life and Precision*

Speed lathe's compound rest has an accuracy and rigidity unmatched by any similar machine. Rest mounts directly on lathe bedway, carries variety of tooling for wide range of operations. It is built to give years of service with original accuracy. All ways are machined from steel, then full-hardened to Rockwell C 60 and precision ground.

Feed screws will operate without backlash. They are supported in preloaded ball bearings and have heat treated threads running in feed nuts which continuously compensate for wear.

Sharply contrasting black markings on white dials record feed of cross slide "on diameter" and feed of compound slide in direct linear motion, both measured in thousandths. Ease of reading eliminates mistakes and increases productivity.

Clamping handle located in front for maximum convenience positions and locks slide rest to bed's top bearing surface. Swivel top slide rotates through 360°. Should wear occur, block that aligns cross-slide with bedway has compensating adjustment. Gibs too are adjustable.

## PRECISION TAILSTOCK

*With Leadscrew for Sensitive Feed*

Tailstock is positively centered with the headstock by the double-bevel bed design. Lever clamps tailstock in position, the tailstock casting bearing directly on the wide top surface of the bed.

Standard tailstock has No. 2 Morse Taper in spindle for holding centers or other attachments. Hardened 1¼" diameter spindle is actuated by handwheel-operated feedscrew supported in two permanently lubricated ball bearings. The 3½" travel is measured in sixteenths of an inch at front-top of spindle, and in thousandths on dial at handwheel end. Spindle has full bearing in all positions.

Lever operation can be provided for quick and sensitive traverse of spindle for drilling, reaming, lapping or other operations. Travel is controlled by adjustable stop. Spindle is also available with ¾" diameter straight hole. Additional travel and air operation can be furnished.

**For Optional Accessory Tooling**
**Write for Bulletin 60LT-1**

*ADDED FEATURES OF*

# SIXTY SERIES PRECISION TURRET LATHES

*A Rivett First . . .*

## AUTOMATIC INDEXING TURRET

*Speeds Production, Maintains Close Tolerances*

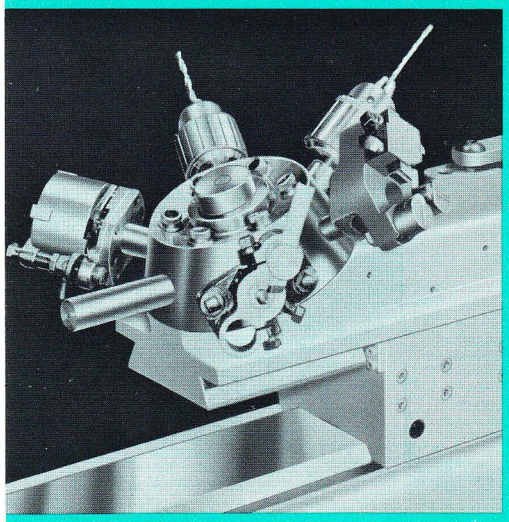
Turret mounts directly on lathe bedways, and is positively centered relative to headstock by double-bevel surfaces on bedways. Precise alignment of turret head to spindle, both vertically and horizontally, is controlled by adjustment of baseways in which turret slide travels.

Six-position turret head rotates on high-quality sealed antifriction ball bearings for maximum rigidity and life. Head is bored standard for $\frac{3}{4}$″ dia. tool shanks, or bored special for $\frac{5}{8}$″ or 1″ diameter.

On return of turret slide to far right, turret head is automatically cam-indexed to next tool position and locked by hardened and ground finger moving in pre-loaded roller bearings, engaging hardened and ground index plate.

Turret slide is traversed quickly and smoothly by sensitive feed lever. Maximum travel after indexing is 4″—ample for deep hole drilling or long turning operations. Base and slide are hardened and ground and continuously lubricated for maximum accuracy and life.

Turret slide passes over double tool cross slide with ample clearance for tools, reducing turret tool overhang and permitting broader range of tooling in one complete setup. Stop screws at outboard end of turret slide control depth of hole or length of cut for each turret head position.



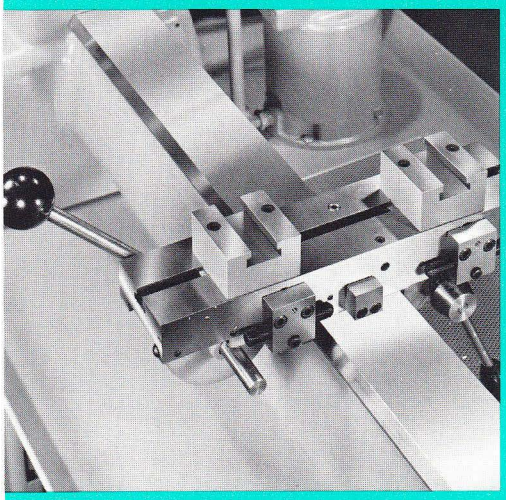
*A Rivett First . . .*

## DOUBLE TOOL CROSS SLIDE

*Has Hardened and Ground Steel Slides*

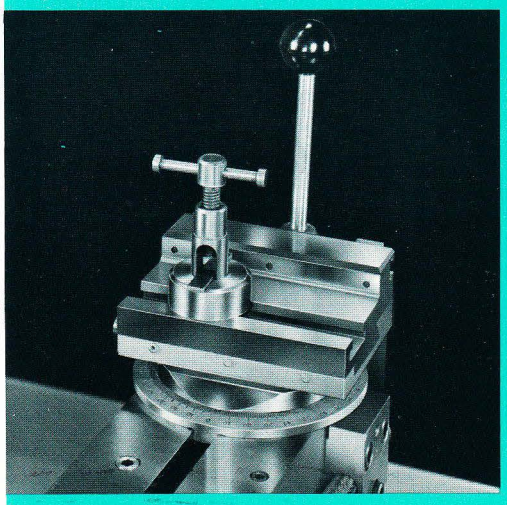
All mating slides are machined from steel, then fully hardened and ground to assure continuance of original accuracy. Cross slide, dovetailed and gibbed to base, is traversed by hand lever through rack and pinion. Hand lever can be positioned on either left or right side for operator convenience.

Ball detent guides operator to center position of cross slide to permit ample clearance between front and rear tool blocks when bringing turret head forward to spindle. Adjustable stops, fully protected from chips, control cross slide travel in both directions.



## UNIVERSAL TURNING SLIDE

Optional attachment mounts directly on double tool cross slide, at front and/or rear, greatly adding to range of work that can be handled in one setting on turret lathe. Slide swivels to any angle indicated by graduated ring on base. Travel up to 2″ may be set by stops: Slide provides for turning straight or taper diameters, facing, boring, hole-recessing and grooving.



**For Optional Accessory Tooling**
**Write for Bulletin 60TT-1**

# RIVETT WORKHOLDERS FEATURE

## *Precision, Efficiency, Capacity*

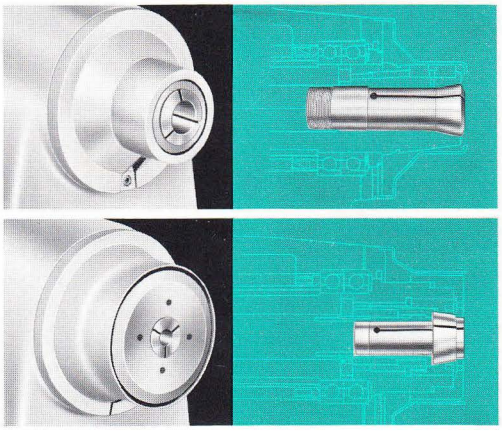
Rivett collets and step chucks mount directly in spindle mouth, thus imparting spindle's inherent accuracy directly to the work. Standardized spindle nose, ASA style L-00, permits interchangeability of workholders for barstock or discrete parts.

Rivett 6R draw-in collets feature greater capacity, up to 1⅛" dia. The long jaws and proper taper reduce force required to grip work. Bearing spacing is double that of conventional collet. This reduces runout error on undersize and oversize stock.

Rivett step chucks operate with same accuracy and ease as draw-in collets for holding circular or irregular-shaped parts. Standard sizes carried in stock have nominal capacity of 2", 3", 4", 5" or 6" and may be stepped ⅜" deep. Greater depth chucks can be furnished.

Rivett 7R stationary collets, requiring spindle with threaded nose, are recommended for parts on which lengths must be held to especially close tolerances. This collet has no "in" or "out" motion when closing on the work.

Rivett 22J draw-in collets with maximum capacity of 2¼" diameter require special headstock with threaded-nose spindle, and are intended for work on larger plastic or metal parts weighing less than 20 lbs.



## SPECIFICATIONS

*Rivett Sixty Series Precision Lathes*

| GENERAL | High Speed Lathe | Turret Lathe |
|---|---|---|
| Distance between | | |
| Centers with tailstock flush | 18" | |
| Collet and turret face, before indexing | | 16" |
| Swing over bed, dia. | 9¼" | 9¼" |
| Swing over bottom slide of compound slide rest, dia. | 6¼" | |
| Floor space; electrical compartment door open | 28" x 82½" | 28" x 82½" |
| Height of spindle centerline | 45" | 45" |
| **HEADSTOCK & WORKHOLDERS** | | |
| 6R, long taper, key-drive nose, ASA L-00 | | |
| Max. dia. round stock passed through spindle, held in jaw chuck | 1¼" | 1¼" |
| Draw-in-collet, Rivett 6R | | |
| Max. dia. round hole | 1⅛" | 1⅛" |
| Max. square hole | 25/32" | 25/32" |
| Max. size across flats; hexagon hole | 31/32" | 31/32" |
| 7R, threaded spindle nose | | |
| Max. dia. round stock passed through spindle, held in jaw chuck | | 1¼" |
| Stationary collet, Rivett 7R | | |
| Max. dia. round hole | | 15/16" |
| Max. dia. square hole | | 5/8" |
| Max. size across flats; hexagon hole | | ¾" |
| 22J, threaded spindle nose | | |
| Max. dia. round stock passed through spindle, held in jaw chuck | 2⅜" | 2⅜" |
| Draw-in collet, Style 22J | | |
| Max. dia. round hole | 2¼" | 2¼" |
| Max. square hole | 1 9/16" | 1 9/16" |
| Max. size across flats; hexagon hole | 1 15/16" | 1 15/16" |
| **SPINDLE SPEED RANGE & DRIVE** | | |
| Standard horsepower rating | 1½ | 2 |
| Standard DC variable drive, forward and reverse | 0-4800 rpm | 0-4800 rpm |
| Special DC variable drive, forward and reverse | 0-8000 rpm | 0-8000 rpm |
| Fixed AC drive, 20 speeds forward and reverse | 150-4000 rpm | 150-4000 rpm |
| **SHIPPING INFORMATION** | | |
| Net weight with motor and standard equipment | 1200 | 1250 |
| Crated for domestic shipment, one crate, approx. | 1500 | 1550 |
| Boxed for export shipment, approx. | 1600 | 1650 |
| Cubic feet, boxed for export shipment, approx. | 70 | 70 |

*Sixty Series High Speed Lathe*

| TAILSTOCK | High Speed Lathe |
|---|---|
| Travel of spindle | 3½" |
| Dia. of spindle | 1¼" |
| Taper of hole | Morse No. 2 |
| Scale graduations | 3½" x 16ths |
| Dial graduations | .001" |
| Lever-operated tailstock available; travel controlled by adjustable stop. | |
| **SLIDE REST** | |
| Travel of top and cross slides | 5¼" |
| Dial graduations, cross slide | .001" on dia. |
| Dial graduations, compound slide | .001" feed |
| Size of tool holder used in rocker tool post | 5/16" x ¾" |
| Size of tool used in turret tool block | ⅜" x ⅜" |

*Sixty Series Turret Lathe*

| DOUBLE TOOL CROSS SLIDE | |
|---|---|
| Width and length of base | 3¼" x 7¾" |
| Travel of cross slide | 4¼" |
| Swing over cross slide | 5¼" |
| **UNIVERSAL TURNING SLIDE** | |
| Travel of slide | 2" |
| Capacity of rocker tool post slot | 5/16" x ⅜" |
| **TURRET** | |
| Length of base | 10" |
| Travel of slide after indexing, max. | 4" |
| Diameter and depth of tool holes | ¾" x 1⅛" |
| Optional diameter of tool holes | ⅝" or 1" |

Leland-Gifford Co. reserves the right to change the design of their machines without notice and without incurring any obligation to apply these changes to machines previously sold.

**Our regional distributors and their sales engineers are highly qualified by experience and training to help you with your machining problems. Behind them stand the Rivett/Leland-Gifford traditions of quality, performance, and customer service.**

***Use only "Genuine" Rivett parts.***

Represented by:

RIVETT **LATHES & GRINDERS**

Manufactured by

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